

Applicant: Jay M. Short  
Application No.: 09/421,629  
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**In the Claims**

Please cancel claims 32 through 47 without prejudice.

Claims 1-47 (cancelled)

Please add the following new claims 48-63:

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48. (New) A bioactivity or biomolecule having an activity of interest obtained by a method comprising::
- a) culturing a gene expression library comprising a pool of expression constructs, each expression construct comprising a vector having one or more cDNA or genomic DNA fragments inserted into a known cloning site, wherein the cDNA or genomic DNA fragments in the pool of expression constructs are derived from a plurality of species of donor organisms; and
  - b) screening the expression constructs to identify one or more expression construct containing a vector that produces a bioactivity or biomolecule activity of interest;
  - c) removing the vector from the known cloning site of the one or more expression construct identified in b); and
  - d) expressing the DNA encoding the bioactivity or biomolecule or of interest contained in the vector obtained in c), thereby obtaining the bioactivity or biomolecule having an activity of interest.
49. (New) The bioactivity or biomolecule of claim 48, wherein the activity is an enzymatic activity.
50. (New) The bioactivity or biomolecule of claim 49, wherein the enzymatic activity is selected from the group consisting of oxidoreductase, transferase, hydrolase, lyase, isomerase, and ligase activity.
51. (New) The bioactivity or biomolecule of claim 48, wherein the enzymatic activity is selected from a lipase, a protease, a glycosidase, a synthase, and a kinase activity.
52. (New) The bioactivity or biomolecule of claim 48, wherein the donor organisms are microorganisms.

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53. (New) The bioactivity or biomolecule of claim 52, wherein the microorganisms are derived from an environmental sample.
54. (New) The bioactivity or biomolecule of claim 48, wherein the microorganisms are a mixed population of uncultured organisms.
55. (New) The bioactivity or biomolecule of claim 48, wherein the DNA fragment comprises one or more operons, or portions thereof.
56. (New) The bioactivity or biomolecule of claim 55, wherein the operon or portions thereof encodes a complete or partial metabolic pathway.
57. (New) The bioactivity or biomolecule of claim 48, wherein the DNA comprises a gene cluster.
58. (New) The bioactivity or biomolecule of claim 57, wherein the gene cluster encodes one or more polyketide synthases.

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59. (New) The bioactivity or biomolecule of claim 48, wherein the method further comprises the step of recovering a fraction of the cDNA or genomic DNA fragments DNA having a desired characteristic.

60. (New) The bioactivity or biomolecule of claim 48 which comprises the step of amplifying the cDNA or genomic DNA fragments.

61. (New) The bioactivity or biomolecule of claim 60 wherein the step of amplifying the DNA precedes the identifying step.

62. (New) The bioactivity or biomolecule of claim 61 wherein the identifying step precedes the amplifying step.

63. (New) The bioactivity or biomolecule of claim 48 which comprises both the steps of (i) amplifying the cDNA or genomic DNA fragments and (ii) recovering a fraction of the cDNA or genomic DNA fragments having a desired characteristic.

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